

REMARKS/ARGUMENTS

Replacement Drawing Sheets

Six replacement formal drawing sheets are enclosed herewith. The drawing figures originally filed were informal. Specifically, Fig. 4 has been clarified to show that the gas cylinder is being shown in cross section with an upper half of the handle 12 removed.

Claims 1 and 2 – Section 103(a) Rejections

Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as being obvious over Collins (U.S. Patent No. 4,451,982) in view of Poehlmann (U.S. Patent No. 5,964,035). This rejection is respectfully traversed.

Applicant presents herewith the Declaration of the inventor and applicant, Richard J. McCann. Additionally, Applicant presents the Declarations of Charles W. Karwan, Patrick D. Covert, and Charles Cutshaw, as well as the Statements¹ of John A. Larsen and Kim Breed, all of whom are well-known knife designers or critical writers. Each of them attest to the uniqueness of the use of a gas spring to solve the problems known to be associated with traditional springs for decades.

Graham v. Deere Analysis

A determination of obviousness under section 103 is based on the factual inquiries set forth in *Graham v. John Deere Co.*²: (a) the scope and content of the prior art; (b) the differences between the prior art and the claims at issue; (c) the level of ordinary skill in the art; and (d) objective evidence of nonobviousness.

Scope and Content of the Prior Art

Collins teaches a folding knife that locks in the open position with a spring-biased bolt that can be manually retracted to allow the blade to pivot into a closed position. The illustrated embodiment shows the bolt 24 to be in the form of an elongated rod which is biased by an

¹ Authenticated in the Declaration of Richard J. McCann.

axially-aligned coil compression spring 62.

Poehlmann teaches a folding knife in which locking keys 234, 236 are displaced along an axis transverse to the length of the blade and handle (co-axial with the pivot of the blade). An axially compressible helical spring 208 is disclosed and illustrated as the biasing means for the key device 6 in the locking mechanism. In a “kitchen sink” paragraph near the end of the best mode section, where it is routinely stated that any and every part could be substituted with anything else that would still be functional, Poehlmann states simply: “A biasing or urging means other than helical spring 208 can be provided such as a compression spring, a leaf spring, a resiliently deformable plastic or other material and/or hydraulic or pneumatically-forced systems.” Column 8, lines 31-35. Poehlmann does not disclose *any* example of “a resiliently deformable plastic or other material” or *any* structure that would function as “hydraulic or pneumatically-forced systems.” Additionally, Poehlmann does not suggest an *advantage* to using one of the vaguely-described alternatives over the disclosed helical spring embodiment or how such an alternative might be combined into the bolt lock knife of Collins. Because this suggestion of an advantage is lacking in the prior art, the presently-claimed combination is nonobvious.³

Although Wirges et al. describes the apparatus it discloses as a “gas spring,” its functions are those of a damper and a stay. Specifically, it has a fixed volume cylinder 1 that is divided into two chambers 8, 9 by a piston 3. *See* Column 2, line 68 – column 3, line 3. An elastomeric, axially-displaceable piston ring 18 acts as a valve to limit the flow of gas from one chamber to the other (the combined volumes being fixed, not variable) so as to dampen extension or retraction movement of the piston rod 2. The apparatus does not replace the function of a coil or leaf spring to bias another member in a particular direction. Instead, it permits a “lid or other movable structural member to be held fast in any portion of its path of movement on a support.”

² *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966).

³ *In re Sernaker*, 217 U.S.P.Q. 1, 6 (Fed. Cir. 1983)(“The lesson of this case appears to be that prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings.”)

See column 1, lines 55-57. Thus, it functions as a stay rather than as a biasing means.

The Differences Between the Prior Art and the Claims at Issue

The claims specify, in addition to a handle, movable blade, and latch member, that the gas spring comprises “a movable wall that partially defines a substantially sealed, variable volume chamber containing a gas” and that movement of the latch member “causes the movable wall to reduce the volume of the chamber, thereby compressing the gas to create spring force against the latch member.”

Contrary to the Examiner’s assertion, Collins does not state at column 3, lines 31-33, that any type of spring would work provided it fit into chamber 50. It states merely: “[a] spring or other biasing mechanism 62, retained within chamber 50, urges the bolt 24 toward the first end 17 of the handle.” The chamber 50 is in no way disclosed or suggested to be a sealed cylinder or variable volume pressure chamber.

Neither Collins nor Poehlmann teach “a movable wall that partially defines a substantially sealed, variable volume chamber containing a gas” nor that movement of the bolt or latch member “causes the movable wall to reduce the volume of the chamber, thereby compressing the gas to create spring force against the latch member.” Wirges et al. does not supply this missing disclosure.

As explained in the declaration of Richard McCann, metal springs must be made of the proper material and be properly tempered in order to be both flexible and resilient, while also not being too brittle so that they break nor too soft so that they quickly fatigue. This can be particularly critical in very small springs that cannot be “over engineered” to exceed minimum specifications due to space limitations. Any metal spring has a finite life because flexing always causes fatigue. Terminal fatigue can manifest as either a loss of resiliency or as a crack that propagates to the point of breakage, resulting in mechanical failure.⁴

Flexing metal springs in locking folding knives are subject to corrosion and to obstruction

by dirt and other debris, including ice. A traditional approach to this problem has been to either permanently lubricate or enclose the springs to minimize the detrimental effects.

The application on which the Collins patent is based was filed nearly 25 years ago and issued 22 years ago. Despite the availability of this design and the known limitations of metal springs, no one prior to the present inventor has substituted a gas spring into this design in order to overcome this known shortcoming.⁵

Because hydraulic fluid (of any type) is by definition not compressible, in is inconceivable how a “hydraulic spring” could be constructed⁶. Poelhmann certainly does not disclose such a machine. Moreover, Poelhmann’s bare reference to a “pneumatically-forced system” does not provide sufficient direction to modify Collins to include “a movable wall that partially defines a substantially sealed, variable volume chamber containing a gas” and that movement of the latch member “causes the movable wall to reduce the volume of the chamber, thereby compressing the gas to create spring force against the latch member” as presently claimed.

Level of Skill in the Art

A person of ordinary skill in the art is also presumed to be one who thinks along the line of conventional wisdom in the art and is not one who undertakes to innovate, whether by patient, systematic research or by extraordinary insights, it makes no difference which.⁷ A person of ordinary skill in the art of knife design is likely to be a general machinist with little specialized training in knife design, but with several years of hands-on experience.⁸ The present inventor, Richard J. McCann, is no different in this regard. It was, however, only after many years of experience in knifemaking that he assembled parts that had been within his (and all other

⁴ See also Declarations of Karwan, Covert, and Cutshaw.

⁵ See Declarations of McCann, Karwan, Covert, Cutshaw, and Statements of Larsen and Breed.

⁶ See Declaration of Richard J. McCann.

⁷ *Standard Oil Co. v. American Cyanamid Co.*, 227 U.S.P.Q. 293, 298 (Fed. Cir. 1985).

⁸ See Declarations of McCann and Karwan.

knifemakers') capability to make for decades. From a patentability standpoint, it is important to note that that which is within the capabilities of one skilled in the art does not equate with obviousness. "There is nothing in the statutes or the case law which makes 'that which is within the capabilities of one skilled in the art' synonymous with obviousness."⁹

Objective Evidence of Nonobviousness

Objective evidence of nonobviousness includes, but is not limited to, (a) commercial success of the claimed invention, (b) long felt but unsolved needs, and (c) failure of others.¹⁰ When evidence of these "secondary considerations" is properly presented, it cannot be ignored in connection with the determination of obviousness¹¹ and failure to consider it is clearly error.¹² The presence of such evidence can be the most probative evidence of nonobviousness available and helps to avert the trap of hindsight.¹³ The absence of objective evidence is a "neutral factor."¹⁴ These "secondary considerations" require a finding of nonobviousness if the matter is otherwise doubtful.¹⁵

Commercial success often does not play a large part in the analysis of obviousness in the PTO because an inventor often waits until his patent issues before he swing his production into full gear.¹⁶ Mr. McCann only recently began sales of a limited production of this knife under the trademark Foldair™. These limited production knives are being sold for \$400 and several have been sold at this price.¹⁷ Standard production knives of this design are expected to sell for approximately \$200. It is of particular interest to users that the spring cannot fatigue from use, is a closed cylinder so corrosion is not a factor, and, because there is no bending action at all, it

⁹ *Ex parte Gerlach and Woerner*, 212 U.S.P.Q. 471 (PTO Bd. App. 1980).

¹⁰ *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. at 467.

¹¹ *In re Sernaker*, 217 USPQ 1, 7 (Fed. Cir. 1983).

¹² *Custom Accessories Inc. v. Jeffrey-Allan Industries Inc.*, 1 U.S.P.Q.2d 1196, 1199 (Fed. Cir. 1986).

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *In re Sernaker*, 217 U.S.P.Q. at 7.

¹⁶ *Id.*

¹⁷ See Declaration of McCann.

cannot break.¹⁸

This knife was recently shown at an international trade show and generated substantial interest among collectors, enthusiasts, and writers.¹⁹ Mr. Steve Shackleford, editor of *Blade*, the worlds number one knife publication, and *Blade Trade* magazine, interviewed Mr. McCann and inspected/photographed the knife for a review in an upcoming issue. Neither Mr. Shackleford nor any of the attendees at the trade show inspecting the knife indicated ever having known of a locking knife to use a closed gas-filled piston cylinder unit as a gas spring in place of the standard coil or leaf spring that has been in use for as long as locking folding knives have been in existence.²⁰ Interest in featuring this invention in *Blade* magazine is echoed by the statement of Field Editor, Kim Breed.²¹

Despite bolt-action locking knives being known in the art for at least 20 years, as evidenced by Collins, and despite the widely-known technology of a simple gas spring being available for at least as long, no one has heretofore made the combination of these elements nor suggested doing so **in the presently-claimed manner** in order to overcome known shortcomings of the prior art.²² This is strong objective evidence of a long-felt need being unfilled by others' inventions and is substantiated by the several declarations and statements of persons skilled in the art that are submitted herewith. Each of the declarants, who are persons of at least ordinary skill in the art – all skilled, successful and highly regarded knifemakers and writers – attests to the uniqueness, novelty, and nonobviousness of Mr. McCann's invention. Specifically, the aspect of the knife that is unique – the use of the gas-filled closed piston/cylinder to provide the biasing force to lock the blade – is what has filled a long felt need in the art to replace springs that are subject to breakage and/or fatigue and is the subject of the present claims and is directly attributed by each of the declarants.

¹⁸ See Declarations of McCann, Karwan, Covert, Cutshaw, and Statements of Larsen and Breed.

¹⁹ See Declaration of McCann.

²⁰ *Id.*

²¹ See Statement of Kim Breed.

²² See Declarations of McCann, Karwan, Covert, Cutshaw, and Statements of Larsen and Breed.

This case also may be closely analogous to the situation which was before the Supreme Court in *Eibel Process Company v. Minnesota & Ontario Paper Co.*²³ and the Court of Customs and Patent Appeals in *In re Conover*²⁴. In the *Eibel* case, it was the discovery that the unequal speeds of stock and wire produced a defective paper product under high machine speed because of the disturbance and ripples some ten feet from the discharge. In the *Conover* case, it was the discovery that roller bearings were being destroyed by heat generated by galling of the bearing surfaces that led to the claimed plating of one of the surfaces with a metal having non-galling characteristics. Here, as in the *Eibel* and *Conover* cases, the invention is not the mere use of a known technique to remedy a known source of trouble, but is, as explained by Chief Justice Taft, “the discovery of the source not before known and the application of the remedy” for which Applicant here seeks to be rewarded by the grant of a patent²⁵. Here, as in *Eibel* and *Conover*, once the problem has been correctly identified and the proper solution applied, the solution, in hindsight, would seem obvious. Hindsight is not, however, the proper test of patentability.

EXTENSION OF TIME

Applicant hereby petitions for a three month extension of time and asks that the fee be charged to the deposit account of Applicant’s attorney.

SUMMARY

In light of the arguments and declaration evidence detailed herein above, the withdrawal of all claim rejections, the allowance of the pending claims, and passage of the instant application to issue are hereby courteously solicited.

If the Examiner believes that any issue in the instant application may be more rapidly disposed of by a telephone interview, please feel free to contact the undersigned at the number shown below.

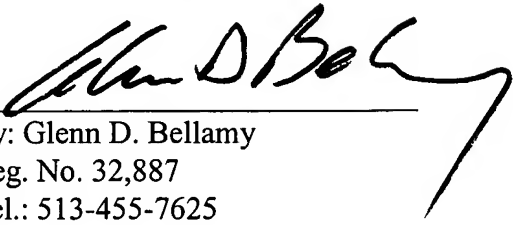
²³ 261 U.S. 45 (1923)

²⁴ 134 U.S.P.Q. 238 (CCPA 1962)

²⁵ See 134 U.S.P.Q. at 240.

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Respectfully submitted,
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